

28/6/00

55

What is Claimed is:

1. A nitride based semiconductor laser device comprising:

5 a transparent substrate having conductive properties;  
10 a nitride based semiconductor layer formed on one surface of said transparent substrate and constituting a cavity;

10 a first ohmic electrode of a first conduction type formed on the other surface of said transparent substrate; and

15 a second ohmic electrode of a second conduction type formed on said nitride based semiconductor layer,

20 at least one of said first and second ohmic electrodes being formed in such a shape or arrangement that the forward and backward directions along the cavity length of said nitride based semiconductor layer can be distinguished.

2. The nitride based semiconductor laser device according to claim 1, wherein

25 said first ohmic electrode and said second ohmic electrode have different shapes.

3. The nitride based semiconductor laser device according to claim 1, wherein

403833-3752302  
said first ohmic electrode and said second ohmic electrode have the same shape.

4. The nitride based semiconductor laser device  
5 according to claim 1, wherein

5 said second ohmic electrode is arranged on a region different from a region above a region where said first ohmic electrode is formed in said nitride based semiconductor layer.

10

5. The nitride based semiconductor laser device according to claim 1, wherein

5 said transparent substrate is composed of gallium nitride or silicon carbide.

15

6. The nitride based semiconductor laser device according to claim 1, wherein

5 said nitride based semiconductor layer contains at least one of gallium, aluminum, indium, boron, and thallium.

20

7. The nitride based semiconductor laser device according to claim 1, wherein

5 at least one of said first and second ohmic electrodes is asymmetric with respect to a line passing through a center 25 point of said cavity length and vertical to the cavity length

direction.

8. The nitride based semiconductor laser device according to claim 1, wherein

5 said nitride based semiconductor layer has a striped current injection region, and

said first and second ohmic electrodes respectively have regions opposite to said striped current injection region.

10

9. The nitride based semiconductor laser device according to claim 1, further comprising

dielectric films respectively formed at a front facet and a rear facet of said cavity.

15

10. The nitride based semiconductor laser device according to claim 9, wherein

said dielectric films respectively formed at the front facet and the rear facet of said cavity have different reflectances.

20

11. The nitride based semiconductor laser device according to claim 1, wherein

said nitride based semiconductor layer comprises a 25 cladding layer of a first conduction type, an active layer,

and a cladding layer of a second conduction type.

12. A method of fabricating a nitride based semiconductor laser device, comprising the steps of:

5 forming a nitride based semiconductor layer on a transparent substrate having conductive properties;

10 forming a first ohmic electrode of a first conduction type on a predetermined region on the other surface of said transparent substrate, and forming a second ohmic electrode of a second conduction type on said nitride based semiconductor layer; and

15 dividing said transparent substrate, together with said nitride based semiconductor layer, to form a front facet and a rear facet to form a cavity.

20 the step of forming the first and second ohmic electrodes comprising the step of forming at least one of the first and second ohmic electrodes in such a shape or arrangement that the forward and backward directions along the cavity length can be distinguished.

25 13. The method according to claim 12, further comprising

respectively forming dielectric films at said front facet and said rear facet.